



# OFFICE OF WEATHER AND AIR QUALITY

National Oceanic and Atmospheric Administration

## Research Grant Opportunities, NOAA-OAR-OWAQ-2019-2005820

The **Office of Weather and Air Quality (OWAQ)** supports world-class weather and air quality research to save lives, reduce property damage, and enhance the national economy. In pursuit of its vision and mission, OWAQ works closely with the National Weather Service (NWS) to help develop and transition weather and air quality research, including hurricanes, severe thunderstorms, heavy precipitation, and air pollution.

### Current Opportunities

There are eight grant competitions in the "FY2019 Office of Weather and Air Quality Research Programs" (<https://go.usa.gov/xPMY6>) grant opportunity valued at approximately \$16,200,000. Eligible applicants are U.S. Institutions of higher education; other non-profits; commercial organizations; state, local and Indian tribal governments; and U.S. Federal Government agencies, except in the VORTEX-SE, JTTI, and S2S competitions in which case U.S. Federal Government employees are ineligible. For the full opportunity, visit [grants.gov](https://grants.gov), noting that all deadlines are 5:00 p.m. ET.

Summary of Grant Opportunities	Opening Date	Closing Date
High Impact Weather Test Beds	09/26/18	02/12/19
Joint Technology Transfer Initiative	09/26/18	02/15/19
Air Quality Research and Forecasting	09/26/18	12/19/18
Verification of the Origins of Rotation in Tornado Experiment in the Southeast U.S. (VORTEX-SE)	09/26/18	02/22/19
Infrasound Detection of Tornadoes and High Impact Weather	09/26/18	03/20/19
Next Generation of Mesoscale Weather Observing Platforms	09/26/18	03/06/19
Snowpack and Soil Moisture Observations and Data Assimilation to Improve the National Weather Model (NWM)	09/26/18	02/15/19
Subseasonal-to-Seasonal	09/26/18	02/13/19

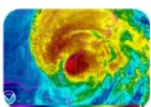
## Implementation of the Weather Act of 2017



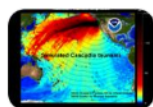
Sec. 102. Weather Research and Forecasting Innovation



Sec. 103. Tornado Warning Improvement and Extension Program



Sec. 104. Hurricane Forecast Improvement Program



Sec. 105. Weather Research and Development Planning



Sec. 109. United States Weather Research Program



Sec. 201. Improving Subseasonal and Seasonal Forecasts

The Weather Research and Forecasting Innovation Act of 2017 (the Weather Act) bolsters the Office of Oceanic and Atmospheric Research's (OAR) commitment to advancing weather research and reinvigorating the weather portfolio. The Office of Weather and Air Quality (OWAQ) ensures alignment of office practices with the strategic goals outlined in the Weather Act. This includes collaborating with various subject matter experts across NOAA to develop Congressional reports and deliverables required by the Weather Act, and briefing NOAA leadership on OAR-related activities and reports.



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# Office of Weather and Air Quality Research Program Descriptions



**High Impact Weather Testbeds**, as a component of the United States (U.S.) Weather Research Program (USWRP), focuses on applied research, development, and the demonstration and testing of that research in NOAA's quasi-operational forecasting environment through engagement with one of NOAA's testbeds (Joint Hurricane Testbed; the Hazardous Weather Testbed; and the Hydrometeorology Testbed). Weather focus areas include tornadoes, severe wind and hail storms, tropical cyclones, heavy rainfall, winter weather, and flooding.



**Joint Technology Transfer Initiative (JTII)** focuses on furthering the development, testing, and evaluation of mature weather research that has potential for improving NOAA's NWS operational capabilities, particularly in the areas of advancing numerical weather prediction capabilities in that seamlessly integrate in the NOAA Unified Forecast System (UFS), water prediction capabilities, and forecasting extreme precipitation and flooding events.



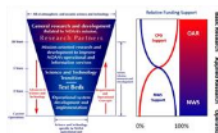
**Air Quality Research and Forecasting** focuses on the current NOAA operational forecast challenges for fine particulate matter (PM<sub>2.5</sub>) and ozone predictions. This includes improving emissions from sources such as wildfire smoke and dust, chemical mechanisms (e.g., representation of secondary organic aerosols) that account for reactions from wildfire-associated species, accuracy of meteorological predictions for fields such as planetary boundary layer height and flows in complex terrain and near coasts, chemical boundary conditions, and tempo-spatially resolved trans-boundary influences.



**Verification of the Origins of Rotation in Tornado Experiment in the Southeast U.S. (VORTEX-SE)** is a research program intended to improve tornado forecasts and warnings in the southeastern United States by examining historical data (special datasets collected in the field as supported by VORTEX-SE) and applying state-of-the-art numerical weather prediction and data assimilation systems. VORTEX-SE will also explore avenues for more effectively communicating tornado forecasts to the public, and evaluate aspects of public vulnerability, risk perception and response to these forecasts.



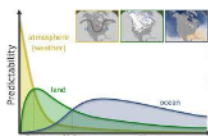
**Infrasound Detection of Tornadoes and High Impact Weather** seeks to improve understanding of infrasound as it relates to the detection of tornadoes in the United States, particularly the Southeast U.S.; the potential operational forecasting and warning benefits; and the limits of temporal and spatial detectability with various infrasound observing network configurations (e.g., how precisely can source locations be determined, measures of detectability and warning such as false alarm rate and probability of detection, etc.).



**Next Generation of Mesoscale Weather Observing Platforms:** The National Academy of Science reports: Observing Weather and Climate from the Ground Up (2009), and The Future of Atmospheric Boundary Layer Observing, Understanding, and Modeling, Proceedings of a Workshop (2018) underscore the importance of improved observations of the lower atmosphere to better understand and predict specific high impact weather events. This funding opportunity will focus on R & D to advance the next generation of operational mesoscale weather observing platforms needed by the weather and water enterprise.



**Snowpack and Soil Moisture Observations and Data Assimilation to Improve the National Weather Model (NWM):** Both snow depth (snow water equivalent) and soil moisture are important in the hydrologic cycle and as inputs to the National Water Model, but current measurements of both are spatially and temporarily sparse and not well assimilated and parameterized into the physics of the NWM. Improving the efficiency, effectiveness, and accuracy of obtaining, and applying these measurements will improve the outputs of the NWM and the benefits to society.



**Subseasonal-to-Seasonal:** This program will address a spectrum of issues on the subseasonal-to-seasonal time frame at various stages of research readiness, and will advance predictive capability and understanding of precipitation on the subseasonal-to-seasonal scale, via improved data assimilation especially coupled data assimilation including new observation types, Earth system model processes for precipitation and high-impact events, ensemble techniques, composition, and post-processing, including multi-model ensembles.



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